

EUROPEAN LANDSCAPE CONTRACTORS ASSOCIATION

ELCA

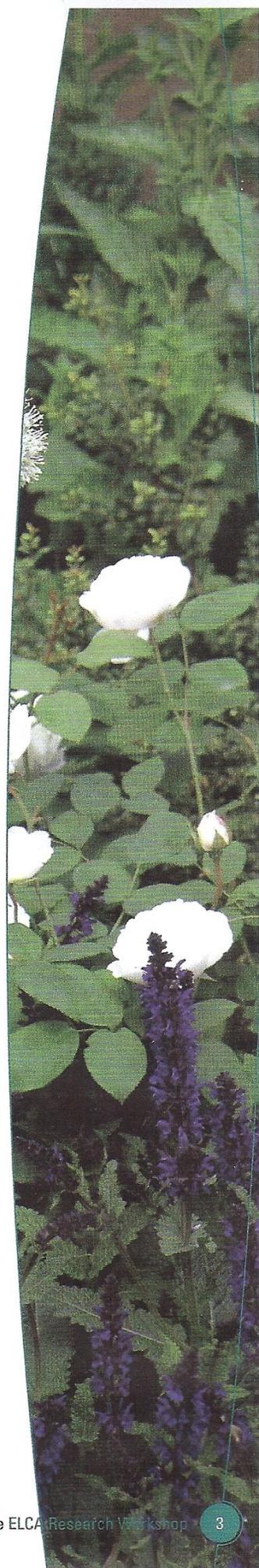
ELCA Research Workshop
Green City Europe –
for a better life in
European cities

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Plants, Health, Well-being and Urban Planning

In 2010, we realized a study about the positive impacts of plants in the cities under the guidance of Plante et Cité that is a national platform for experiments and technical information for green spaces and urban horticulture. The UNEP participated in the following committee of this study with the Union of the horticulture (Val'hor), the University of Angers (AgroCampus) and the CRESGE of the Catholic University of Lilles.

The study focuses on urban green spaces. The first aim of the current study is to describe and to comment the impacts of green spaces from a systemic synthesis based on international research in urban ecology, sociology, psychology and geography in particular between 1980's to nowadays. That permits to point out the plurality of effects of the green parks. For the needs of the analysis, the allergen effects of the plants were not evaluated. In total, more than 100 studies had been consulted. Secondly, the results were applied as urban planning recommendations.

Since 2000 years, the development of sustainable urbanism principles has resulted in a strong demand by urban residents for green space for aesthetic enjoyment, recreation and environmental preoccupations. Thirdly, we identified the people, scientists and no scientists, who continue to work in this way.

For the ELCA Research Workshop, we will present the partners of this study. Secondly, we will expose the methodology and the results. In conclusion, we will come back to the data and comment on the limits of this study. What research perspectives are possible, as of today, to help us define the necessary level of

green parks to implement sustainable urban planning into practice?

Methodology

From a systemic perspective Plants, Health, Well-being and Urban Planning, this bibliographical analysis comprised of 30 publications selected by the committee of the study from a first bibliographic background of 104 publications.

The bibliographic background was constituted in two parts, at first by Plante et Cité. Secondly, I myself completed it to balance the different disciplinary approaches that it represented. I used the ScienceDirect database on the web. Finally, as the Table 1 shows us, there is an important difference in the number of scientific publications from country to country.

This could mean, as far as the question of plants in the cities, that it is a question of strategy and means of publication much more than a question of national relevance.

So, the synthesis presents the results of international research over the past twenty years. We collected some research in urban ecology, in public health and from sociologists and psychologists. In monographies the spaces that are the most studied are green parks and in other studies the density of green on a city scale.

Results

The principal and original result of the study is the global and systemic point of view on the positive impact of the vegetation and of the green parks in urban areas.

Now, I propose that you look more precisely at the kind of data that we



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Allemagne	Germany	3
Angleterre (GB)	Great Britain	9
Suisse	Switzerland	2
France		20
Hollande	Netherlands	4
Suède	Sweden	4
Canada	Canada	5
Etas-Unis (USA)	USA	45
Chine	China	2
Australie	Australia	1
Non renseignés		9
TOTAL		104

Number of publications by country
Table 1: Répartition des sources bibliographiques par pays
Engl. Übersetzung?

have available today. I will expand on the data that appears on each petal of the figure. There is some quantified data and also some qualified data in correlation with the different disciplines that are represented.

Environmental impacts and public health

From an environmental point of view, through their growth processes the absorption capacity of plant leaves improves air quality and decreases the level of atmospheric carbon and other "greenhouse" gases (Nowak and al, 2005, 2007)

The second result that was shown by Mc Pherson is the decrease of local temperatures by a modelisation of the tree shading (Mc Pherson and al, 1988, 1999, 2002). I have to point out that this research was conducted in California.

Public health

The second impact of green parks in cities concerns residents' health. Several studies have found a correlation between the proximity of parks to housing areas and childhood obesity (Michel and Popham, 2008; Weil, 2009). The same outcome of the effect of green spaces on health was confirmed for two categories of people: the elderly and the poor (Mitchell and Popham, 2008; Maas, 2009). Bell (2008) has delved into surprising results about the correlation between the density of green parks and the practice of physical activity in rural and urban spaces: urban growth in rural areas can be a contributing factor for obesity, the residents being dependent on their car in daily life to go to work, to school, to the supermarket and so on.

Sociological impacts

Three studies present the motivations to use green parks (Schipperijn and al, 2010; Stahle (2009), Seeland and al, 2009) that I can resume with the following equation: green parks = nature = leisure i.e practicing a sport, meeting some friends or somebody else, listening to birds singing and so many other social activities.

We can specify, with the works of Kuo and Sullivan (1996, 1998, 2004), two American psychologists in Chicago, that the presence of just some trees may reduce domestic violence by facilitating social relations, creating a positive atmosphere to talk together for example. It is often the first act of a social relation.

Results indicate that the presence of trees and grass is proportionally related to the use of outdoor spaces; the amount of social activity that takes place within them, and the proportion of social to non-social activities they provide. Green places influence social contact among neighbours and provide evidence that nature plays an important role in creating vital neighbourhood spaces.

Another study conducted in Zurich confirms the role of public green spaces for social inclusion of youths from different cultures (Seeland and al, 2009).

21 résultats scientifiques sur les Bienfaits du Végétal en Ville



The positive sociological impacts of green parks could be due to the impact of vegetation on the psychological frame of mind of each individual.

Psychological impacts and well-being

Many studies deal with the positive impact of plants on people's stress and anxiety levels (Sheet and Manzer, 1991; Sullivan and Kuo, 2001, Sterp de Vbries and al, 2003; Kuo and Taylor, 2004).

It is the cognitive facet of human interaction with plants.

The power of the physical environment to influence aggression has been well-established. Over-crowding, high temperatures and noise have all been linked to aggression and violence via mental fatigue. Tests for the proposed mechanism and for alternative mechanisms indicate that attentional functioning is accelerated with access to nature.

Some authors suggest the usage of the therapeutic psychological impact of plants in hospitals to accelerate convalescence (Ulrich, 2002) or in the treatment of child hyperactivity (Kuo and Sullivan, 2004), or just for the good development of children (Jutras, 2003).

Conclusion and perspectives

Our review confirms the positive impact of green spaces on public health, the increasing quality of the urban environment and on well-being.

It also shows the social and psychological impacts of plants favoring the arguments that green parks are beneficial to the environment as well as to the ecology concerning public health. What I mean to say is that plants create a social place by humanizing urban spaces. How to conceive some urban planning integrating sustainable development without placing human health and well-being at the heart of them?

The implicit extrapolations of all sorts of bibliographies need to be adjusted to European urban areas. This study is based on a lot of American research.

We need a real interdisciplinary research program to confirm these first results.

It is a challenge for the French researchers. This study has signaled the state of research in different European countries. In France, there is a lack of global approach crossing environmental, sociological and urban management perspectives. The situation is different in comparison to other European countries such as Great Britain, Germany and Sweden, where the relationship between Health and Urban Planning is more often taken into consideration. I think about the work of Johanna Maas who is here with us today.

It is also a political challenge, because taking vegetation into consideration in its globality and its complexity is the way to address the high expectations of urban dwellers across Europe.

Thanks you for your attention.

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